ENVIRONMENTAL ASSESSMENT REPORT

U.S. Ferto Mining Operation
Dry Creek Drainage

United States Ferto Corporation
Sanpete County, Utah

Responsible Agency: USDA, Forest Service
Manti-LaSal National Forest
350 East Main Street
Price, Utah 84501

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Approval
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Forest Engineer

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I. Introduction

A. To fill requirements of 36 CFR 252.4, U.S. Ferto Corporation of Spanish Fork, Utah, filed with the District Ranger at Ephraim, Utah, on August 17, 1977, a plan of operations. This plan presents the mining and reclamation procedures for their presently operating mine. A copy of this plan is available for public review at the District Ranger's office or at the Forest Supervisor's office in Price, Utah.

Forest Service approval of this operating plan does not constitute certification of ownership to any person named as owner herein.

Approval of this operating plan does not constitute recognition of the validity of any mining claims named herein, or of any mining claim now or hereafter covered by this plan.

The Ferto Mine is a surface mining operation located in Dry Canyon about one mile east of Milburn, Utah, in the NE¼ of Section 7, T13S, R5E, SLBM. It is accessed by a low standard road from Milburn. The mining area is all within the Sanpete Ranger District of the Manti-LaSal National Forest. The mine lies just inside the Forest boundary. The area lies within the lower multiple use zone as defined by the Sanpete Ranger District resource management plan.

Map 1 shows the mine location, access road, haul road, and topography.

The mining operation has been reviewed by a Forest Service I.D. Team. Ferto Corporation has been consulted and the mining and reclamation plans discussed.

Ferto plans to continue to mine an unusual carbonaceous shale which has mineral content that makes it valuable as a soil conditioner after pelletizing and treatment with ammonia. U.S. Ferto has mined this material since 1971. The claims, however, have been mined continuously since located in June 1955. Mining has occurred from this deposit on and off since the early 1900's. The material then as now was used for a soil conditioner. The material being mined is described in the literature as follows: "Lignite, consisting of dark gray to brownish black, earthy, friable, poorly bedded materials containing woody fragments, was prospected between 1955 and 1963, in secs. 7 and 8, T. 13 S., R. 5 E., in Dry Creek Canyon east of Milburn. Some of the lignite was subsequently mined, ground, and mixed with turkey feathers to produce a soil

conditioner. The bed in a prospect pit is 1.1 feet thick and beds as thick as 14 feet have been found. The lignite beds occur in the North Horn Formation. An adit on the north side of the canyon in sec. 7 shows 1.6 feet of lignite containing clay partings and associated with limestone"...(Pratt and Callaghan, 1970, p. 57). Land and Mineral Resources of Sanpete County, Utah. Unpub. UGMS Bulletin 85.

Several on-site reviews have been made by the Forest Service and a Ferto representative, for the purpose of development of the plan of operations and reclamation coordination.

B. Three contiguous 80 acre placer mining claims, named Clawson No. 1, 2, and 3, constitute the claim group. The operations presently involves about 5 acres, and will involve about 15 acres under this plan. The mining is located mostly on Clawson No. 1 claim (see Map 1). Expansion of the operation, in addition to that discussed in the plan, should it become necessary, would be eastward, and will require submittal of a modification of the operating plan. Operating plan modification will require an Environmental Assessment Report. Because it will require Ferto a few decades to mine out this section at their present production rate, future operations and expansion will be based on the demand for their product.

Only surface mining is presently being done and is to continue. Mining is being accomplished by removing the material from a steep slope, beginning at the top of the slope, progressing downward in a series of benches (see Figure 2). The plan of operations proposes to continue to mine using the same procedure. The benches are to be constructed on contour. They will be from 10 to 15 feet in width, with bench slopes of about 30 feet height and a slope of 3/4 to 1. The overall slope upon completing the mining will be about 1¼ to 1. The benches will be slightly insloped to retain runoff and facilitate revegetation. The benches are mined one at a time, using a crawler bulldozer, D8 or D9 size, pushing the material to one end of the bench where it is loaded onto trucks with a front-end loader. The material is soft enough that drilling and blasting is not generally required for excavation.

Waste material constitutes about 5 to 8 percent of the total mined. About one-half of this is hauled with the mineral material. The remaining one-half is placed in selected areas approved by the Forest Service.

Present production averages about 7,000 tons per year. Ferto expects to increase this production by 1,000 tons per year to an annual production of 15,000 to 20,000 tons per year. As the production rate is increased, roads will be upgraded as may be required to prevent degradation of surface resources. Ferto expects to do their mining during snow-free periods as they are presently doing. At maximum production, about 7 to 10 truck loads per day will be hauled.

This assessment evaluates this mining activity to determine the extent of damages that may occur to surface resources, and determine whether this damage is significant or can be minimized. It also evaluates the reclamation plan to assure that it is adequate.

C. Reclamation - The program of reclamation is one of present and future. The present includes such items as excess overburden, areas susceptible to erosion, water runoff, roads and grading. It is somewhat of a continous program to maintain and fill the old eroded areas, but this will be accomplished by using the remaining overburden. There must be continous work and supervision to control water runoff, as this has caused much erosion in many areas where no mining is or has been done. These areas will be filled and graded as overburden becomes available.

The mining will leave benches 10 to 15 feet in width, slightly insloped and on contour. These benches will be seeded with assorted grasses and tree seedlings designated by the Forest Service.

The mining will be a continous development of benches, starting at the top of the deposit and working downward as shown in Figure 2. As each bench is completed, it will be prepared and revegetated. Bench back slopes should not exceed 0.75 to 1, and will never be left in a vertical or near vertical condition.

It should be noted that the majority of the mineral deposit areas do not support significant vegetation at this time. The bench mining system that is being used should help support vegetation as it will reduce the rate of erosion and retain moisture for longer periods of time. Since most of the precipitation falls in the form of snow, the ability of the snow to melt and saturate several inches of soil is instrumental in providing moisture to vegetation during long periods of drought. Increased vegetation provides more sources of food for deer and other animals.

All roads, except for the main road, will become part of the bench mining system. There will be no mining below the elevation of the access road, and it is planned that the lowest mining level will be one bench height above the road.

All equipment, brush and other types of debris will be removed from the benches as they are reclaimed. The entire site will be left free from any trash, equipment, or debris upon final closing of the mine.

D. Major Issues and Concerns -

1. Soil Erosion
2. Degradation of Dry Creek
3. Reclamation
4. Visual Quality
5. Sheep Trail
6. Threatened and Endangered Plants and Animals
7. Public Safety

E. Opportunities - The existing mine scar, waste dump, and mine roads will be reclaimed, revegetated, and the overall stability and productivity of the site will be increased. Soil erosion and degradation of the stream will be decreased.

II. Affected Environment

A. The area to be mined under this plan and assessment is shown on Figure 1. This area will average about 600 feet along the canyon and about 700 feet along the slope (about 400 feet vertically) and lies between two small side drainages.

The mine is located on a dry, south-facing slope. The slope averages from 60 to 70 percent, and is generally even sloped, except where existing benches and roads occur and near the top where sandstone ledges crop out. The deposit is mantled by a thin soil cover which is showing slow soil creep. The slope is sparsely vegetated with oakbrush and grasses. The deposit begins at about the elevation of the road elevation $\pm$ 7,200 feet and continues upslope to about elevation 7,600 feet.

Dry Creek, a perennial stream, flows westerly in the canyon bottom. It is located south of the mine and road. High flows occur during spring runoff and during high intensity rainstorms.

The existing mining disturbance besides the access road, includes two 30 foot wide benches with about 30 foot near vertical high walls and a mine road from the main road in the canyon bottom across the slope to the bench area. A spoil pile that blankets most of the hillside for about 100 feet below the lower bench is present. The spoil is thin, probably less than 10 feet in thickness.

An old adit, now caved and closed, is located at the base of the slope about 100 feet from the main road near the west edge of the mine area. Its depth into the hill is unknown. A second small adit, about 4x4 feet in size was driven about 30 feet into the formation at the present location of the upper bench.

B. Soil and Geology

The claimed area lies near the top on the west slope of the Sanpete Monocline. The strike of the rock formation is generally west and northwest with a dip of 2 to 10 degrees to the north. The mineral area consists of shale facies of the North Horn Formation, upper Cretaceous in age. The deposit being mined is a dark carbonaceous shale which is faulted and deeply weathered. The overburden cap consists of sandstone, shale and conglomerate with thin layers of fresh water limestone. U.S. Ferto Corporation estimates that of the total material being mined, between 5 to 8 percent is waste, and 3 to 5 percent of this waste is mixed in the mined mineral and

shipped to the plant. The remaining waste material is left on the area. Some of this waste is used by U.S. Ferto Corporation to fill in or to correct natural erosion areas. The unused waste material is sidecast or pushed below the plateau. On the steep slopes, the larger rocks roll down the slope gaining sufficient force that the oakbrush and other vegetation is being destroyed. The finer waste material pushed below the existing plateau is creating unstable waste dumps that blanket the lower growing vegetation. The trees present are not being covered, but the rolling rocks do inflict some damage on their stems. Some erosion of the waste deposits is anticipated. This would be expected throughout the life of the mine and perhaps some after the mine is finished, and until these dumps become stable. As the upper benches are developed, there should be fewer rocks rolling down the slope.

Soils of the North Horn Formation tend to be highly erosive and unstable. Indications of old slides and soil instability are present on the south side of the drainage. On the steep slopes of the north side, dry soil creep is extensive. Building roads on the steep dry slopes to initiate the plateaus may activate some soil movement.

The Reclamation Plan of U.S. Ferto states, "The mined-out areas will be seeded with grass and tree seedlings as prescribed by the Forest Service." The generally dry conditions of the area will make revegetation of the mined-out areas difficult. The slope and aspect also adds to the difficulty of the revegetation.

To aid in keeping erosion to a minimum, the mined benches will be constructed on contour and slightly insloped, roads will be water-barred, drainages realigned, and other erosion control structures as necessary will be built and maintained.

C. Water

Dry Creek is a perennial stream. This stream has a low rate of flow, except during the spring runoff period and during high intensity thunderstorms. A sparse vegetation cover contributes to the natural overland flow and sediment load of Dry Creek, especially during these high flow rate periods.

There are a few small seeps and springs in the area of the claims. None are located in the present mining area. Future mining expansion should not affect this water resource.

One individual has submitted a Special Use Application requesting permission to develop one of the springs for culinary use. It is located on Claim #1, but far enough below the present mining operation that it will not be affected. Future mining operations will be away from this spring.

The water produced from this area is appropriated and is used for watering livestock and wildlife, and irrigation. Although the rate of flow in Dry Creek will normally be small, care must be exercised to prevent degradation of Dry Creek by the mining activities.

From the present mining location some of the larger rocks pushed or sidecast down the slope have reached Dry Creek. During the runoff period or thunderstorms, finer materials from the waste dumps may be washed into Dry Creek. However, none have reached the stream to date. Future waste dumps will not be allowed to approach the creek.

As the benches are built, most of the vegetation will be eliminated. This will expose more of the surface to erosive processes, especially water action. But the stair step effect of the bench system of mining suggests that erosion will be reduced or stopped because it captures and holds water on the benches. Seeding the mined out benches will aid in stabilizing the area.

The benches will be insloped slightly and revegetated with grass seed and tree seedlings as determined by the Forest Service. Additionally, benches having a grade over three percent will have waterbars installed to prevent the lateral movement of water, washing of seed, and erosion.

Dry Creek could be affected if mining were permitted near or in its channel. U.S. Ferto, in their operating plan, state no mining will be done downhill of the main road. This road is north and above Dry Creek. This road is far enough above Dry Creek that any mining done near it should not affect Dry Creek. Some sedimentation may occur when the road is maintained. To maintain the present water quality of Dry Creek, no materials from mining activities will be allowed to enter the creek or its flood plain. Disturbance or mining activities will not be allowed in Dry Creek.

D. Vegetation

The vegetation overstory on the claimed area is comprised primarily of oakbrush, pinyon-juniper, and mountain mahogany (Stipa). Cheatgrass (Bromus tectorum), Aristida, Indian ricegrass (Oryzopsis hymenoides), and some Poa exist beneath this overstory. The cover density is approximately 15 percent.

The mining system will eliminate this vegetation cover. The reclamation program calls for reestablishing vegetation on the mined-out benches.

The surface soil from the area being mined has been stripped away and disposed as waste material. As each bench is completed, the seedbed soil will be the coarse sterile subsurface material.

As an aid in reestablishing vegetation on completed benches, surface soils should be stripped away and stockpiled. When an area is mined-out, this soil could be applied to provide a suitable seedbed. Barriers should be constructed to prevent vehicles from driving into those benches or areas where seeding or planting has been done.

Examination of the undisturbed area above the present mined area indicates water retention on the area is low and natural erosion is occurring. The stair step effect of the bench mining system may retain moisture longer and reduce the erosion that now exists on the undisturbed areas plus provide the moisture needed for revegetation of the mined areas.

Two endangered and threatened plants, Astragalus desereticus and Penstemon tidestromii, are known to occur in the lower oakbrush and mountain brush vegetation zones. The Forest botanist has investigated the areas to be disturbed or those that may be affected by the mining operation for the presence of any threatened or endangered plants. His report indicates that there are no threatened or endangered plants present in these areas.

E. Wildlife and Fish

Deer, an occasional elk, rabbits, smaller animals and various birds are present throughout the area. The water quantity of Dry Creek is not sufficient to support fish.

Presently about 10 acres have been disturbed from mining activities. It is anticipated that an additional 10 acres may be disturbed by the operation should it be expanded eastward. Wildlife forage on the disturbed area will be destroyed. Rehabilitation of the disturbed areas may provide some forage for some species of wildlife. Total recovery of existing wildlife habitat is not anticipated.

The noise of equipment and people are expected to temporarily affect the behavior of the wildlife. Indications from other mining operations are that the animals become accustomed to the activity in a short period of time.

The opinion of Harold Blackburn, Conservation Officer, Division of Wildlife Resources, is that the proposed mining operation will not affect the wildlife species that may be in the area. He also said he has not observed any bald eagles wintering in the Dry Creek area.

No threatened or endangered wildlife species are known to inhabit the proposed mining area.

F. Fire

The claims occupy a south-facing aspect at an average elevation of 7,500 feet. The fuel sizes range from light to medium, and the amount per acre is low. The continuity of the fuels is broken.

There may be some buildup of woody materials during road construction if mining operations are expanded. But, because of the smaller fuel size and broken continuity, it is anticipated this buildup of fuels will be small.

Although most of the factors indicate the potential for fire is low, the presence of men and equipment does increase this potential. It will be greatest during road construction activities where contact with woody material will occur. Most of the time, the men conducting the mining operation will be on areas where all the woody materials have been removed. Basic firefighting tools for fire suppression will be available at all times. All fires will be promptly reported to the Forest Service.

G. Visual Quality

The town of Milburn is located in a secluded valley away from the major transportation route Highway #89. The mining activity is located in the Dry Creek draw in such a manner that it is not presently visible from any point in this valley. When the mining operation of the western side of Claim #1 is completed, the uppermost portions may be discernable from areas within this valley.

The proposed reclamation program of U.S. Ferto will not reclaim to much extent, the altered topography, but will reestablish vegetation and stabilize the areas to reduce erosion. The visual quality after reclamation will be improved from that which exists presently.

H. Cultural and Historic

Any cultural or historic sites that may have existed on the present mining site would have been destroyed.

Leslie Wikle, Archeologist, Monticello Ranger District, did an archeological survey of the mine property and surrounding area. He reports no significant cultural or historic sites were located. The operator will immediately notify the Forest Service if any archeological artifacts are encountered during the mining operation.

I. Wilderness

The site is not within or near a wilderness area and will have no impact to wilderness values.

J. Socio-Economic

The mining operation directly affects the employment of about 25 people. Most of these are employed at the Ferto processing plant in Spanish Fork, Utah. The mining operation is favorably accepted by most residents as a positive contribution to the local and State economy.

K. Soil and Water Management

The area that has been disturbed shows some erosion. However, the steep slopes of the undisturbed area also produces sediment. To reduce erosion on the disturbed area, U.S. Ferto plans to mine the area by the bench system. Also where feasible, drainages will be

realigned, erosion control structures constructed and maintained. Vegetation will be reestablished on the mined-out areas. Reclamation will be performed on the mined-out areas in the normal mining sequence. Reclamation will not be left until all areas are mined out. It is expected that the area will be improved from the present condition.

L. Range Management

The claims lie within the Crooked Spring S&G Allotment. There is some grazing allowed, on a yearly basis, on this allotment. The steep slopes and quantity of feed present on the claims makes them unsuitable for grazing.

The main access road is commonly known as the Dry Creek Sheep Driveway. It is used annually by sheep trailing to and from their allotments on the eastern side of the mountain. In the past, U.S. Ferto has suspended its mining operations when the trailing sheep are in the vicinity of the mine. Representatives of U.S. Ferto have indicated they will continue this practice.

The mining to date has not effected range management, and should not do so over the mine life. Reclamation may improve the area for range. Grazing should not be allowed until vegetation has been established.

One Fairview permittee, who has a permit for nine head of cattle, does use the Dry Creek road to get the cattle onto the allotment; but, in the past, the mining operation has not interfered.

During the expansion of mining operations, the sheep driveway may be temporarily blocked by road construction or ore trucks. But, to whatever extent the mining operations are expanded, it will be in a manner that will not unduly hinder or prevent the use of the driveway for the movement of livestock. U.S. Ferto will assure that the driveway is clear upon prior notice of livestock movement.

M. Recreation

Recreation activities are insignificant in this area. Big game hunting in the fall occurs to a limited extent in the Dry Creek drainage.

N. Minerals and Energy Resources

A geologist of the United States Geological Survey examined the mineral area because it is in an area that has been withdrawn from settlement, location, sale or entry for classification with respect to coal values and there is coal visible in the face above the two existing terraces. After examining the area, the U.S.G.S. concludes the coaly strata of this deposit does not contain leasable coal.

The mineral area is covered by valid oil and gas leases. There are no active drilling operations or proposals for drilling on the area. If a proposal is submitted, the most feasible adjustments will be made to reduce or prevent conflicts.

O. Transportation

The one-half mile of the Dry Creek road, on National Forest land, used by U.S. Ferto is a combination of a non-existing Forest development road #217 and Forest trail #48 (see enclosed map). At one time, the Forest development trail was a road used for the transfer of coal, wood, livestock and equipment from the Skyline Drive to the Fairview-Milburn area. Because no person, company, or agency maintained the road, its condition deteriorated to where it is impassable except by horse or foot travel, upstream from Ferto.

U.S. Ferto does some annual maintenance on the part of the road they use. They have installed culverts, widened the road, and put in collection ditches. Some minor sedimentation may occur during road maintenance.

From 7 to 10, 12 ton truck loads of ore per day are proposed to be hauled. This would be the maximum, with about 20,000 tons per year being hauled. Realistic production would most likely be less than these figures.

Hauling of these amounts will produce damage and deterioration to the road, particularly during periods when the road bed is wet and in dry periods. U.S. Ferto will be required to maintain the road, on Forest lands, so that damage to surface resources does not occur, i.e., excessive dust and excessive erosion must be controlled, Dry Creek must be protected from sediment or pollution, and public safety must be maintained.

It is expected that graveling of the road will be necessary in order to maintain the road bed and meet these requirements. Road standards for use of Forest roads (graveling, culverts, grades, etc.) are set by the Forest Service Manual. Road specifications and requirements are attached.

P. Administrative Improvements

Administrative improvements include a boundary fence and cadastral survey monuments.

Heavy truck travel could cause damage to the fence. U.S. Ferto will be obligated to promptly make any repairs to the fence caused by their operation.

It is possible that survey monuments may be enountered, especially when mining close to the Forest boundary. U.S. Ferto will flag and avoid survey monuments. Any damage to survey monuments will be reported promptly to the Forest Service.

Q. Public Safety

The location of active mining is approximately 700 feet above the main access road. Occasionally, large rocks, either dislodged or sidecast during the mining operation, have traveled across this road and down into the creek.

People who may travel this road, unaware of the mining activity, are screened from seeing it by trees and oakbrush until they come into the area where most of the rocks have crossed the road.

The portion of Dry Creek road used in the mining operation is maintained as a single lane dirt road. Passing varies from very difficult to impossible. There are no turnouts. Backing some distances to one of the few wide spots in the road would be required to allow safe passing of oncoming traffic. At the present time there are no signs along the route denoting any activity or hazards. Although the condition and length of driveable access is such that the public use of the road is infrequent, some signs indicating the presence of heavy equipment and falling rocks will be posted during the actual mining period.

III. Evaluation Criteria

1. Protect water quality of Dry Creek.

2. Mitigate or minimize effects of mining on surface resources consistent with 36 CFR 252, and FSM 2810.

3. Consistency with decisions and requirements of the Sanpete Ranger District Resource Management Plan.

4. Consistency with the rights for such operations granted by the 1872 Mining Laws (as amended).

IV. Alternatives

1. Take no action or permit no mining.

Federal laws and regulations, particularly the 1872 Mining Laws, as amended, have granted a right to every citizen of the United States to enter public domain lands and to prospect, develop, and mine the mineral resources. 36 CFR 252 requires that any surface resource disturbing activity on National Forest lands require assessment of the effects of such activities and mitigation of these effects to the extent reasonably possible. This alternative is, therefore, not viable.

2. Find and develop an alternative source.

Deposits having the same unique properties, ease of access, size of deposit, and minimum overburden and waste are not known to occur within reasonable or economic haul distances of the Ferto plant. Prospecting and search has been done by U.S. Ferto, but an acceptable alternative source of material could not be located.

Since the mining is being done under rights granted by the 1872 Mining Laws, this alternative is not viable.

3. Permit mining only on the existing disturbed site - prohibit expansion.

This alternative has merit. A majority of the surface resource damage has already occurred. Continued activity on the present site should not result in any significantly larger impacts.

This alternative would permit U.S. Ferto to acquire some of the raw material for their immediate needs. But future production projection figures presented by U.S. Ferto show their future needs may be met only by expansion of the mining area.

The arbitrary limitation of work on existing claims without cause is contrary to the provisions of the 1872 Mining Law (amended). This alternative is, therefore, not viable.

4. Change method of mineral removal from surface mining to tunneling.

This alternative will allow the claimants to exercise their rights to mine and be environmentally less damaging. It will require only one road. The area needed for waste storage would be less. Waste materials will be finer. Establishing vegetation on these areas will be easier than the areas of coarse overburden produced from strip mining. But, the costs of tunneling will be much greater than surface mining. The instability of the mineral body requires any tunnel to be extensively shored up.

The method of mining is at the descretion of the operator and is also a function of several factors. Some significant factors are economic, safety, and resource considerations. Underground mining is not economical in this location nor would it provide a more acceptable activity. This alternative is not viable.

5. Approve the mining operation as proposed in the operating plan.

This alternative would approve the plan of operations without requiring specific mitigating measures. This may permit the operator to cause damages that could otherwise be eliminated or minimized.

6. Approve the operating plan as proposed, but require specific measures for mitigation of probable adverse effects.

This alternative will require specific actions to be accomplished that will minimize to the extent reasonably possible, adverse effects and will improve the existing undesirable conditions.

Requirements and Constraints

a. The mining will be by benching. These benches will be on contour and slightly insloped. Mining will be from the top of the deposit down. Each bench will be reclaimed as they are completed in accordance to the reclamation plan.

b. All roads will be waterbarred and drainages realigned, and other erosion control structures, as necessary, will be constructed and maintained. Graveling of the road is also required. Specifications are attached.

c. Waste dump locations will be approved by the Forest Service prior to dumping of any waste materials. Waste dumps will not be allowed to approach Dry Creek or cover the main access road.

d. No materials from the mining will be allowed to enter Dry Creek.

e. Disturbances of mining will not be allowed in Dry Creek.

f. Where surface soils exist and can be recovered, they should be stripped and stockpiled for later use in reclamation.

g. Barriers should be constructed to prevent vehicles from driving into reclaimed areas.

h. The access road on the National Forest will be maintained in a condition suitable for the movement of cattle, official and private travel.

i. Damage to the boundary fence will be promptly repaired.

j. A search for survey monuments will be made prior to mining on or across the Forest boundary. Located monuments will be flagged and avoided. The disturbance of any monument will be promptly reported to the Forest Service.

k. Appropriate warning signs shall be posted warning of the mining operation and hauling.

l. The Forest Service shall be notified if any archeological artifacts are uncovered. The areas will be left alone until examined by the Forest Archeologist.

m. Basic firefighting hand tools will be available at all times to assist in fire suppression. All fires shall be reported as soon as possible.

n. Any action of work not included in the plan of operation or environmental assessment will be submitted for approval before it may commence.

o. A bond in the amount of $2,000 is required for assurance that reclamation will be accomplished. This bond amount will be reviewed annually and adjusted as may be necessary.

V. Functional and Other Requirements

A. Seedbed Preparation

1. To provide a seedbed, the first 6-8 inches of topsoil shall be stripped off and stockpiled. When an area is mined out, this soil will be applied evenly over the area and then seeded.

2. The following seed mixture is recommended:

	Lbs./Acre
a. Smooth brome (Bromus inermus)	2
b. Orchardgrass (Dactylis glomerata)	2
c. Showy goldeneye (Viquiera multiflora)	3
d. Intermediate wheatgrass (Agropyron intermedium)	2
e. Small burnet (Sanguisorba minor)	3
f. Indian ricegrass (Oryzopsis hymenoides)	2
g. Crested wheatgrass (Agropyron cristatum)	4
	18 lbs./acre

B. Native shrubs and trees will be designated by the Forest Service for planting along the bench areas.

VI. Effects of Implementation

Alternatives 1 through 4 are not viable and were not evaluated.

Alternative 5 -

The mining and use of roads may be done and used, perhaps without regards to control of erosion, stabilizing of waste materials, stabilizing of the mine benches, or performing adequate reclamation both during and following mining.

Irrepairable surface damage, with possible degradation of Dry Creek, may result from this alternative.

Alternative 6 -

1. Some additional sediment may result from road maintenance and from erosion of the existing waste dump. This should be minimized with the required mitigation measures.

2. The existing mine area will be enlarged, which has the potential of increasing soil erosion and producing additional waste materials. This should be insignificant with the required mitigation and reclamation measures.

3. The activity will leave some definite alteration of the topography. The roads and benches will remain as permanent features.

4. The visual quality of the mine area will be temporarily reduced as the mining enlarges the present mine works. Visual quality may be improved over that existing by eliminating the waste pile, and through the reclamation and revegetation of the site as mining progresses.

VII. Evaluation of Alternatives

Federal laws and regulations do not permit for Forest Service dictation of how, when or where a mineral deposit is to be explored, developed, or mined. The 1974 regulation 36 CFR 252 provides the Forest Service's authority to require mitigation of effects to the extent that is reasonably possible.

VIII. Preferred Alternative

Alternative 6 is the preferred alternative for reasons mentioned in preceding sections.

IX. Consultation With Others

1. Howard Terrel, Manager, U.S. Ferto, Spanish Fork, Utah.
2. Ben Black, District Ranger, Sanpete Ranger District, Ephraim, Utah.
3. John Lowe, Zone Mining Engineer, Forest Service.
4. Jack Smedley, Geologist, United States Geological Survey.
5. Fred Thompson, Geologist, Manti-LaSal N.F., Supervisor's Office, Price, Utah.
6. Ed Schoppe, Range Conservationist, Sanpete Ranger District, Ephraim, Utah.
7. Harold Blackburn, Conservation Officer, Division of Wildlife Resources.
8. Robert Thompson, Range Conservationist, Manti-LaSal N.F., Supervisor's Office, Price, Utah.
9. Leslie Wikle, Archeologist, Monticello Ranger District.
10. Robert G. Pruitt, Attorney, Salt Lake City, Utah.

FINDING OF NO SIGNIFICANT IMPACT

U.S. Ferto Mining Operation
Dry Creek Drainage
USDA Forest Service
Manti-LaSal National Forest
Sanpete Ranger District

An Environmental Assessment Report that discusses the U.S. Ferto mining operations located in Dry Creek about one mile east of Milburn, Utah, on National Forest lands in Sanpete County, Utah, is available for public review at the Manti-LaSal Forest Supervisor's office in Price, Utah, or at the Sanpete Ranger District office in Ephraim, Utah.

This mine is presently operating, and has operated since about 1950. U.S. Ferto Corporation has operated the mine since 1973. The Environmental Assessment Report does not indicate that there will be any significant effects upon the quality of the human environment. Therefore, it has been determined that an Environmental Impact Statement is not required.

This determination was based upon consideration of the following factors which are discussed in the Environmental Assessment Report:

1. Construction of the surface mine benches and mine roads which could cause surface resource damages and the mitigation needed to minimize those effects upon other resources.

2. Consistency with decisions and requirements of the Sanpete Ranger District Resource Management Plan.

3. Consistency with the rights for such mining operations granted by the mining laws.

Some public concern has been expressed about possible effects of the project to water quality of Dry Creek and for the visual quality of the Milburn area. The plan of operations and the requirements of the Environmental Assessment Report includes measures designed to protect these values.

The development of this mineral resource is favored and is consistent with the general opinion of the people of the area.

The mine presently exists. This Environmental Assessment Report is prepared to fill requirements of 36 CFR 252 and for approval of U.S. Ferto Corporation's operating plan.

The responsible official is Reed C. Christensen, Forest Supervisor, Manti-LaSal National Forest, 350 East Main Street, Price, Utah 84501.

Reed C. Christensen
Forest Supervisor

3/14/80
Date

APPENDIX

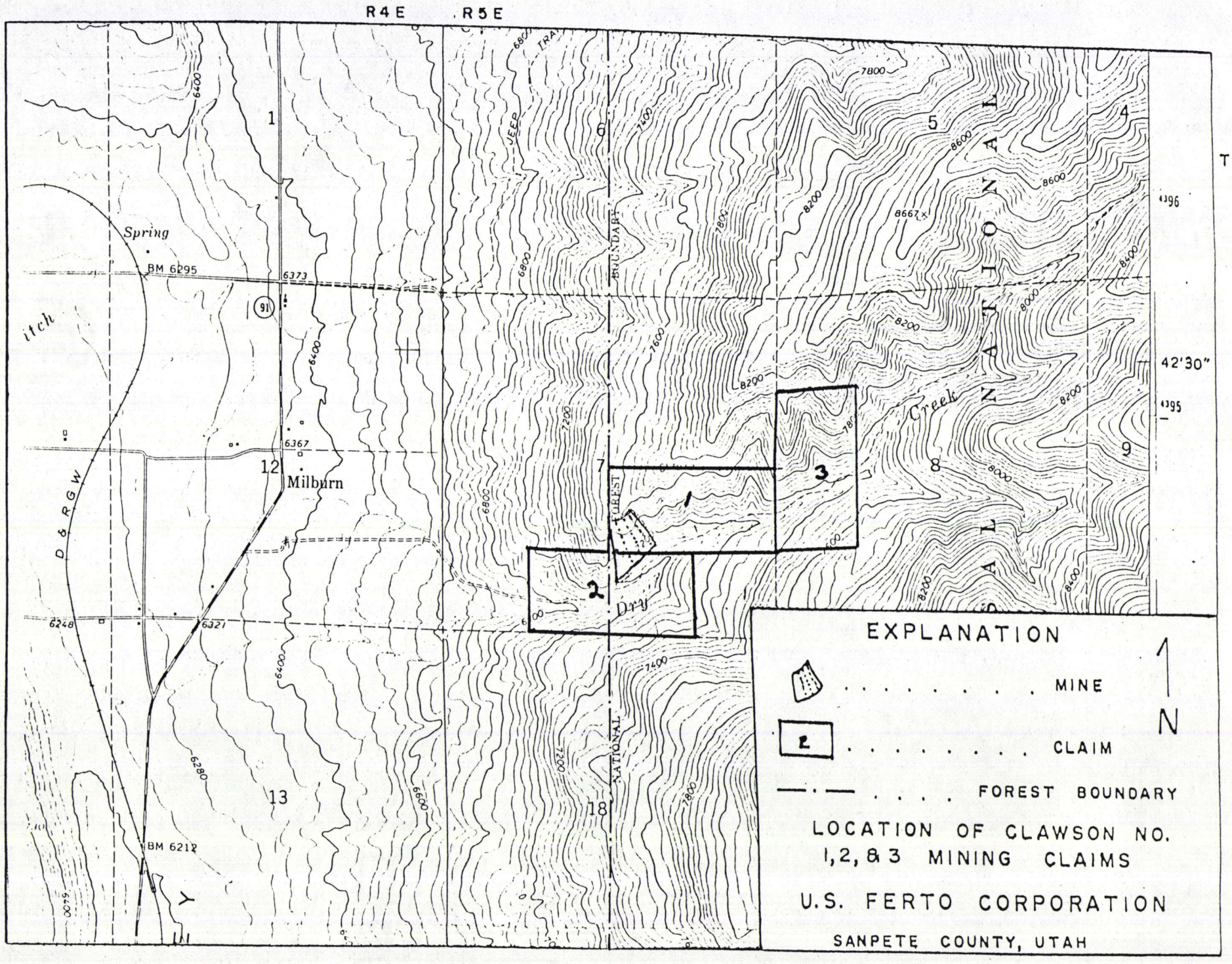
1. Maps and Drawings

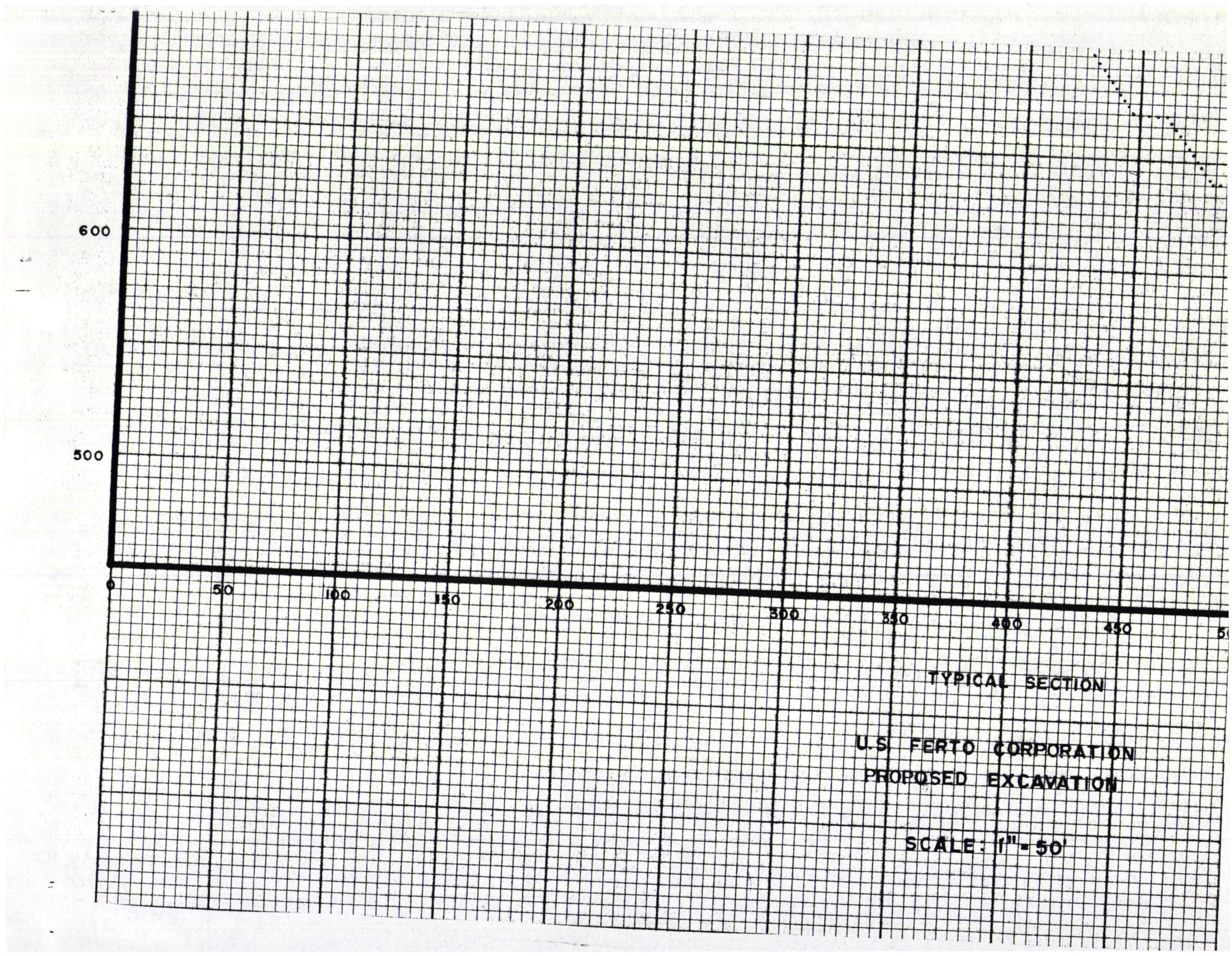
   Figure 1 - Claim Map
   Figure 2 - Cross-Section of Area to be Mined
   Figure 3 - Diagram of Waterbar (Cross Ditch)

2. A Copy of U.S. Ferto's Operating and Reclamation Plan is in the Supervisor's Office Files and the District Ranger's Office

3. Bond Calculations

4. Road Specifications


R4E
R5E
T13S
42'30"
Spring
BM 6295
6373
Milburn
6367
6248
6321
BM 6212
D & R G W
Creek
Dry
FOREST BOUNDARY
NATIONAL
1
2
3
EXPLANATION
MINE
CLAIM
FOREST BOUNDARY
N
LOCATION OF CLAWSON NO. 1, 2, & 3 MINING CLAIMS
U.S. FERTO CORPORATION
SANPETE COUNTY, UTAH


600
500
0
50
100
150
200
250
300
350
400
450
TYPICAL SECTION
U.S FERTO CORPORATION
PROPOSED EXCAVATION
SCALE: 1" = 50'

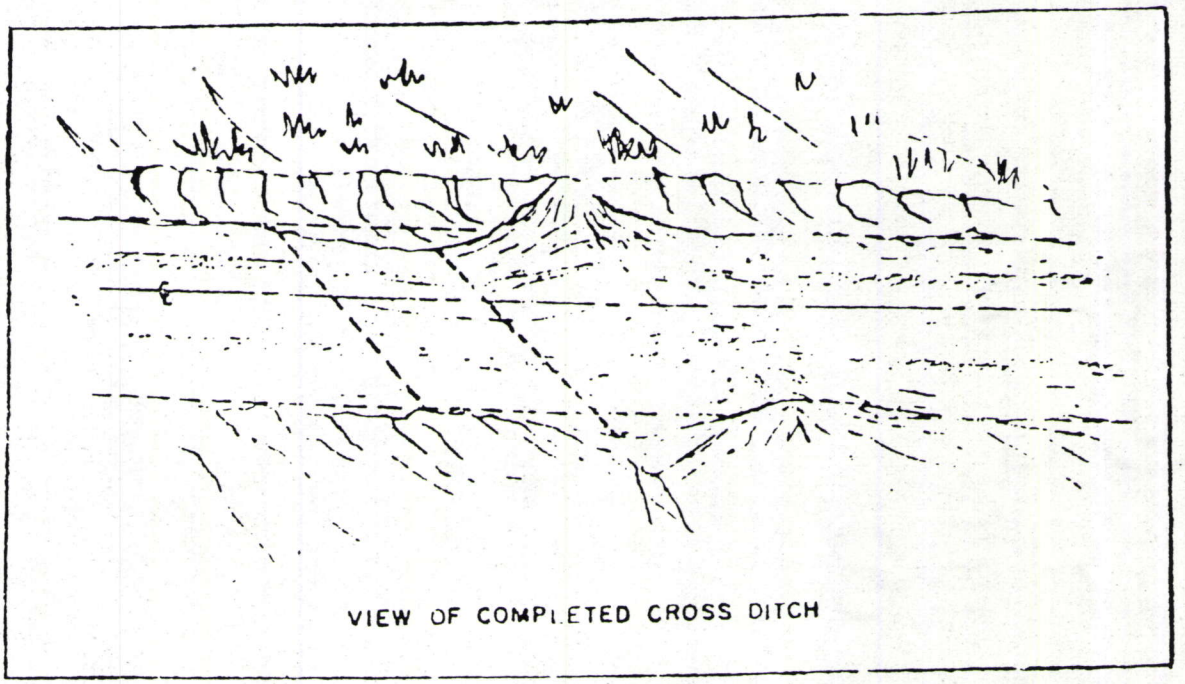
C6.601 - Diagrams and Specifications for Machine Cross-Ditch Construction. (12/71)

Cross ditches are designated by _____.

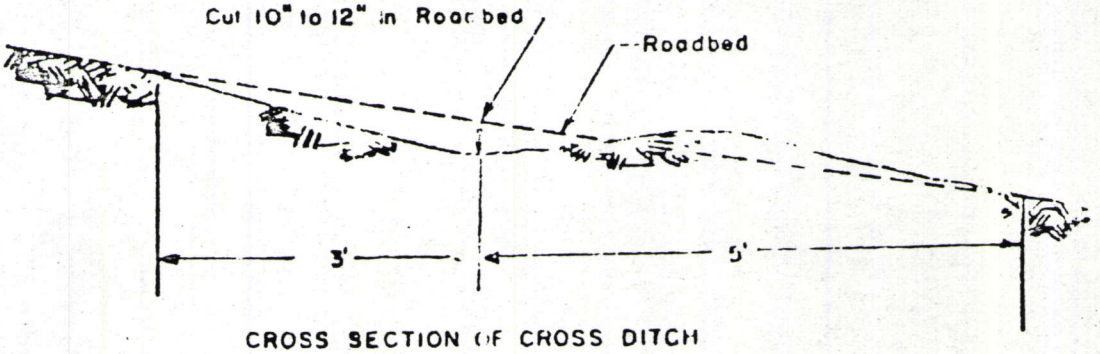
SPECIFICATIONS

1. Cross ditches shall slope diagonally out and downgrade at a minimum angle of 60 degrees with the centerline of the road. The ditch shall be tied securely to the upper bank.
2. The ditch shall be bulldozed or cut with a grader blade into the roadbed to a depth of at least six inches at the upper roadbank and sloped to a depth of at least 12 inches on the road shoulder.
3. Excavated material will be scattered below the ditch so that no dike or barrier is noticeable.

DIAGRAMS



VIEW OF COMPLETED CROSS DITCH



CROSS SECTION OF CROSS DITCH

Bond Calculation For U.S. Ferto Corporation

Adjustments

Actual area disturbed - 10 acres

1. 250 x .11 = 28 Cat hrs. x $50/hr. = $1,400

2. Seeding and Planting - Estimated 2 men can seed the disturbed area in one day.

   One GS-7 @ $50.00/day = $50.00

   One GS-5 @ $40.00/day = $40.00

   $90.00 = 90

3. Travel - = 20

4. Seed Cost:

   18 lbs./acre x 10 acres x $2.50/lb. = 450

   $1,960

   ($2,000)

The bond amount is to be reevaluated annually as mining and reclamation progress. The amount should be readjusted according to reclamation needs.

Rough Draft
EBarney:jmc
November 7, 1979

Appendix 4

The existing access into the Dry Creek drainage from the west side was along Forest development road No. 50217 - Dry Creek Road and Forest Development Trail 5048 - Dry Creek Driveway. The road cross private land for approximately 1.2 miles before reaching Forest boundary. The road across private from county to Forest boundary is considered primitive in construction. The road on Forest was considered non-existing and was in fact a driveway for movement of stock. Some upgrading of driveway has occurred since mine operation began in order to transport material from the mine site. The present system accesses 4.51 sq miles of land within the Forest boundary of which 0.56 is in private ownership. The area can be accessed from the east by way of Skyline Drive road and Oak Creek Ridge road 50138. Access to the area for stock drives and administrative purposes are the primary foreseeable needs other than the proposed mine activities.

The existing access to the mine area needs to be stabilized in order to handle the haul traffic during the intended season of use. Stabilization is required to prevent additional erosion and stream sedimentation. Stabilization should be through an aggregate surfacing which will increase load-bearing capacity of the road to the handle 12 ton truck loads during wet periods; provide resistance to weathering or displacement thereby reducing stream sedimentation and allow ease of maintenance. Maintenance of existing native surface road could result in additional lost of fines from road surface to stream over the 20 year operation of mine. Reduced road width and inadequate passing width would result as cobbles are windrowed during maintenance of native surfaced road. Excessive operation and maintenance cost for vehicles would result.

The required gravel column to adequate support the estimate haul traffic during the design period is 9.5 inches; in addition during the 20 year design period an expected loss due to wear is estimate a 4 inches. The

reduced maintenance cost and operating cost should recovery approximately one-half of the initial cost to gravel. The placement of gravel could be thru stages with initial placement of 9 1/2 inches and the 4 inches for wearing loss placed at approximately 10 years if haul is maintained at the proposed rate of 7-10 loads per day for 110 days per year.

The subgrade should be reconstructed to a 17 foot width and a final surfaced width of 12 foot maintained. Additional turnout should be spaced inter-visable or 1000 ft maximum distance apart.

FERTO PIT

Transportation Planning

260 work days per year

130 Travelable days per year

7-10 Loads hauled per work day

12 ton truck maximum load

Present AUE 7000 tons/year

$$20{,}000 \frac{\text{Ton}}{\text{Yr}} \times \frac{\text{TRK}}{12 \text{ Ton } 8 \text{ Trk}} \times \frac{\text{Day}}{} = 111 \text{ day/yr}$$

= 130 OK

12 ton truck EWL

3 axle single unit

	#6
Empty	17,000
Load	23,000
Gross	40,000

Design

Single axle

Dual - Tam den

Max 16,000

40,000# = 2.9 P

Load

2 P = 27 5 86# = 0.47

.9 P = 12 414# = 0.21

2 P = 12000 = 0.01

0.9 = 6000 = 0.01

Load EWL = 0.68

Empty EWL = 0.02

Round trip

EWL = 0.70

Assume a single layer pavement structure to over-lay on existing ground.

Assign

Pt = 2.0 R = 50 = CBR = 15 = 6 Max

R.F. = 2.0 EWL = 12,432

9. = 0.14

S = ?

SN = ?

Given S = G and EWL = 12,432

Then SN_u = 1.1

With RF = 2

Thnn SN = 1.3

D = SN/9

D = 1.3/0.14

D = 9.21 in

Use 9 1/2 inches

Present 7000 tons/yr

$$7000 \text{ tons/yr} \times \frac{\text{TRK}}{12 \text{ tons}} \times = 583 \text{ TRKS/yr}$$

$$583 \text{ TRKS/yr} \times 20 \text{ yr} \times 0.70 \frac{\text{EWL}}{\text{TRK}} = 8169 \text{ EWL}$$

Better than 8 inches required

Log Truck EWL — 6396 MBF

	Loaded	EWL	EWL Unloaded
Single axle	9728#	0.08	0.04 8500#
Dual axle	32536#	0.83	0.04 16300#
Dual axle	32536#	0.83	
		1.74	0.08

1.84 EWL

$$\frac{10{,}000{,}000 \text{ BF}}{6396 \text{ BF}} \times \frac{\text{TRK}}{} \times \frac{1.84 \text{ EWL}}{\text{TRK}} = 2877 \text{ EWL}$$

2877 EWL = 1" Surfacing Lost

$$\frac{12{,}432 \text{ EWL}}{2877 \text{ EWL}} = 4.3 \text{ inches Wear during use}$$

4690 Trips = 1" Lost

$$\frac{20 \text{ yrs} \times 111 \text{ Days} \times 8 \text{ Trips} \times 1\text{" Lost}}{4680 \text{ Trips}} = 3.79 \text{ inches wear during use}$$

Require 4" addition inches add during use period

[redacted]

USDA - FS.
US FS - Price
Manti La Sal Nat'l F.
350 E. Main
SLC
Supervisor - 637-2817

[redacted]